Humans adapt to social diversity over time

Ribeiro Da Silva Taborda Ramos, Miguel Rui; Bennett, Matthew; Massey, Douglas; Hewstone, Miles

DOI:
10.1073/pnas.1818884116

PNAS
www.pnas.org

Supplementary Information for

Human adaptation to social diversity: A question of time

Miguel R. Ramos, Matthew R. Bennett, Douglas S. Massey, Miles Hewstone

Correspondence to: miguel.ramos@psy.ox.ac.uk or dmassey@princeton.edu

This PDF file includes:

Materials and Methods

Surveys and samples

Research indicates that answers to questions on perceived quality of life may depend on specific survey characteristics (1). To address the concern that bias might arise from survey sampling techniques, we tested our hypotheses across multiple surveys to assess robustness. This strategy also allowed us to perform our analyses across a wide range of countries and years. Our data sources were the World Values Surveys (WVS), European Social Survey (ESS), and the Latino Barometro (LB). These surveys consist of repeated cross-sectional datasets (i.e., a multi-wave design where each wave includes randomly drawn respondents), being distinct from a longitudinal panel design. In all three surveys, random probability sampling was applied in face-to-face interviews, resulting in several representative waves of data. These surveys were designed to enable cross-country comparisons of values, norms, and beliefs on a variety of topics. They share similar questions containing rich information about respondents' religious affiliation and perceived quality of life, with multiple measures of well-being, self-reported health, and other individual characteristics relevant to the present research. This triangulation of surveys has successfully been used before in comparative research examining contextual effects on quality of life indicators (2). Our main analyses testing the effects of changes in religious diversity on quality of life were performed across different waves of the three surveys. For the mediation analysis we were restricted to ESS's Wave 7 given that it is the only survey-wave containing individual-level data on both trust and intergroup contact.

World Values Survey. This survey is a large cross-national, time series study covering a wide range of global contexts. It is comprised of the World Values Survey and the European Values Survey. Across six waves spanning 1981 to 2014 (depending on the country), it contains representative samples from almost 100 countries, representing around 90% of the world's population. The minimum sample per country is 1,000 respondents and stratified random sampling was used to obtain representative national samples with interviews of almost 400,000 individuals (www.woldvaluessurvey.org).

European Social Survey. The ESS is a cross-national survey established in Europe in 2002. Random probability sampling was used to generate national representative samples from 36 European countries and Israel. Countries are surveyed every two years and we used the data available from seven waves (from 2002 to 2014). Face-to-face interviews were conducted with around 350,000 respondents and Wave 7, which we used in our mediation analysis, included 21 countries and about 40,000 individuals (www.europeansocialsurvey.org).

Latino Barometro. The LB is an annual survey containing data from 18 Latin American countries. Nationally representative samples were collected from 1995 onwards and we used the data available at the time of our study (1995 – 2015, 18 waves of data), comprising around 20,000 respondents representing more than 600 million people (www.latinobarometro.org).

Control Variables

Individual-level controls. We control for a wide range of relevant individual-level characteristics, including variables that have been shown to affect quality of life in prior research (3-8). To provide a thorough test of our hypotheses across surveys, we restricted our analyses to the use of variables that were present in all surveys and applied the same dummy variable coding schemes.

Across the three surveys we included the following variables and coding: sex (1 = female), religious denomination, coded in 6 dummies with the reference group "no religion" (1 = Roman

Catholic; 2 = Protestant; 3 = Orthodox; 4 = Jewish; 5 = Muslim; 6 = Other), and employment relation, coded in 2 dummies with the reference group "Employee" (1 = Self-employed and 2 = Other). Marital status was coded in the WVS and ESS in 5 dummies with the reference group "married" (1 = Separated; 2 = Divorced; 3 = Widowed; 4 = Never married; 5 = Other). The LB had fewer categories and marital status was coded in 2 dummies with the reference group "married/living with partner" (1 = Single; 2 = Separated/Divorced/Widow).

We also controlled for other continuous and ordinal variables on which we maintained the original coding: age (together with a quadratic term for age), level of religiosity, whether the person attends religious services (the LB did not have this variable), education, size of town (this variable was excluded from the WVS given that it was asked only in some countries, but a WVS analysis with or without this variable produced the same results), interest in politics, and generalized trust (this is an ordinal variable in the ESS and LB, but a dichotomous variable in the WVS with 1 "most people can be trusted" and 2 "can't be too careful").

We also controlled for political views with a question pertaining to respondents' endorsement of inequality in income levels in both the ESS and WVS. The LB did not have this question, so we used responses to a question about political views assessed on a left-right political scale. Subjective income was included as a control in analyses based on the ESS and LB (e.g., "Which of the descriptions on this card comes closest to how you feel about your household's income nowadays with responses ranging from "1" living comfortably on present income and 4 "finding it very difficult on present income"). The WVS had an identical variable but it was asked only in a small number of countries and, for this reason, we assessed subjective income with responses to the question: "On this card is an income scale on which 1 indicates the lowest income group and 10 the highest income group in your country. We would like to know in what group your household is. Please, specify the appropriate number, counting all wages, salaries, pensions and other incomes that come in". Responses were coded on a scale ranging from 1 "lowest group" to 10 "highest group".

Of importance, we included in our analyses individuals from all religious backgrounds and controlled for religious persuasion. Previous diversity research has favored excluding minority groups from analyses [for an exception, see (9)], but in our research all groups were included, given the broader scope of understanding how humans react to changes in religious diversity (for results divided by religious groups, see additional analyses).

Country-level controls. To account for between-country variation we included a range of economic, social, and political measures known to influence the quality of life or correlate with religious diversity. These variables included country wealth, income inequality, government and political stability, and political conflict within countries (10-14). Country wealth was measured with the gross domestic product (GDP per capita in current US$) using Worldbank data. Income inequality was measured with Gini indices taken from Solt's Standardized World Income Inequality Database (15), which is based on United Nations data and improves on direct estimates of inequality by using a custom missing-data algorithm to render observations comparable to one another. Compared to Gini coefficients available from the World Bank, this dataset covered a greater proportion of countries.

Government stability and internal political conflict were measured using the International Country Risk Guide (ICRG), which assesses risk along several dimensions and has been used to forecast financial, economic, and political risk. It was created in 1980 and provides a comprehensive and continuous measurement system permitting the comparison of risk between countries. The government stability component measures the government's ability to carry out its

declared program and ability to stay in office. It is assessed by considering the following subcomponents: government unity, legislative strength, and popular support. Internal conflict indicates the level of political violence and its potential impact on governance and is created from information about civil wars, political violence, and civil disorder. Both measures range from 0 to 4, with a higher score indicating a higher risk of government instability and internal conflict. All country-level controls were matched to each country by year.

Additional control variables used in the mediation analysis. In the mediation analysis we were restricted to one survey and could not make comparisons across surveys. For this reason, we decided to take full advantage of the rich individual measures in the ESS and expanded our list of control variables to better account for individual-level variation in the quality of life. Thus, in addition to the controls specified for the main analysis, we controlled for citizenship status as this might interfere with people's reactions and perspectives about the country where they were interviewed. Since the size of one's social networks likely influences the frequency of intergroup contact and quality of life, we controlled for the extent of social activity with answers to the question: "Compared to other people of your age, how often would you say you take part in social activities" (with answers that ranged from 1 "much less than most" to 5 "much more than most). In addition, we controlled for circumstances within one's close social environment that might influence the quality of life, which were assessed from answers to seven questions: "Have you or a member of your household been the victim of a burglary or assault in the last 5 years?" (1 "yes", 2 "no"); "Do you belong to a minority ethnic group?" (1 "yes", 2 "no"); "Using this card, please tell me how often there was serious conflict between the people living in your household when you were growing up?" (1 "always" to 5 "never"); and "Using the same card, please tell me how often you and your family experienced severe financial difficulties when you were growing up?" (1 "always" to 5 "never").

At the country-level we controlled for the same variables as in our main analysis. However, in this analysis we did not use Solt's GINI database and computed, instead, a dissimilarity index (16) using respondents' educational distributions to indicate social inequality. The Solt's database had some missing data and, given that our mediation analysis is restricted to a smaller sample size, we followed this strategy to preserve the original sample as much as possible. With this method we were able to preserve all the 21 countries in wave 7 of the ESS.

Supplementary Text

Additional Information about our Modeling Strategy

Main analysis. We adopted a multilevel model specification to account for dependence due to the hierarchical structure of the proposed datasets (i.e., individuals nested within countries; 17). As specified in our main text, religious diversity was disaggregated into a between-country coefficient (time-invariant) and a within-country coefficient (time-variant). For the country-level controls we followed the same approach and introduced each one of them twice: once as time-variant, and the second time as time-invariant t [see in the main text equation *1*]. We included in our equation a linear effect of time to account for the possibility of simultaneous but unrelated time trends in both our diversity coefficients and quality of life. In fact, we expect that in most countries, both religious diversity and quality of life increase over the years and including a control for time accounts for some of this unobserved heterogeneity.

We preferred our model specification compared to other alternatives such as an ordered probit model because it has the advantage of accounting for individual unobserved heterogeneity. In support of our modeling strategy, research suggests that in models with ordinal variables

including many categories (as with our quality of life indicators), a linear specification is more reliable (17, 18).

To analyze the effects of changes in religious diversity, we only included in our analyses countries that were surveyed more than once. At the individual-level, we coded all "don't know", "refuse to answer", and no responses as missing values (the proportion of these responses was below 1% in all three surveys). The resulting total of missing values per survey was extremely low (WVS = 5%, ESS = 1%, LB = 6%). We performed our analyses using Mplus 8.0 (19) and to better deal with missing data we used full information maximum-likelihood estimates with robust standard errors (MLR), which allows estimation with missing data and produces less biased results than other methods [e.g., listwise deletion — see (20)]. This estimation method does not impute missing values but has the advantage of using all observed data (with imputation methods our results were maintained, see additional analyses).

With the WVS our model specification resulted in an analysis comprised of 160,645 respondents in 68 countries, and 142 country-waves (the mean number of observations per country was 2,362). The SEM multilevel model yielded a good fit as shown by the Comparative Fit Index (CFI), Root Mean Square Error of Approximation (RMSEA), and Standardized Root Mean Square Residual (SRMR; for within and between parts of the models) indices (CFI = 0.99; RMSEA = 0.003; $SRMR_{within}$ = 0.001; $SRMR_{between}$ = 0.039). With the ESS, our model specification resulted in an analysis containing 126,634 respondents in 27 countries, and 70 country-waves (with the mean number of observations per country being 4,690) and a model with a good fit (CFI = 0.99; RMSEA = 0.001; $SRMR_{within}$ = 0.001; $SRMR_{between}$ = 0.023). With the LB we retained in our analysis 51,401 respondents in 18 countries, and 71 country-waves (and a mean number of observations per country was 2,856). The SEM model also yielded a good fit to the data (CFI = 0.99; RMSEA = 0.001; $SRMR_{within}$ = 0.001; $SRMR_{between}$ = 0.001). All results are reported in Tables S4, S5, and S6.

Mediation analysis. in this analysis, we extended our initial focus to include a test of both *negative* (i.e., lower generalized trust) and *positive* (i.e., increased intergroup contact) mechanisms whereby religious diversity could impact quality of life. In this way, it was possible to model the suppression of beneficial effects and facilitation of harmful effects that may push or pull in different directions, as well as to provide a socio-psychological explanation of the overall effects of religious diversity on quality of life. In this analysis we were restricted to one wave of the ESS and to preserve as much as possible the available data, missing country-level data values were imputed from the nearest available wave. With this strategy we preserved all 21 countries included in Wave 7 of the ESS. The resulting sample is identical in size to the LB sample and, as such, we followed the same modeling strategy. That is, instead of creating latent variables as in our main analyses, we standardized and averaged the individual responses to the questions about generalized trust, intergroup contact, and quality of life. These individual-level variables were then created at the higher level using the structural equation modeling latent variable approach as in the main analysis. With this procedure, fewer coefficients needed to be estimated in our model, providing more reliable estimates. Table S7 shows average scores of our variables per country.

We allowed the paths between quality of life and all other variables to be freely estimated as well as those between generalized trust, intergroup contact, and the two religious diversity coefficients (time-variant and time-invariant). The model was adjusted for the individual- and country-level variables specified in the Measures section. Note that the country-level covariates (e.g., GDP) were entered twice, mirroring the procedure for the religious diversity coefficients.

This model specification comprised 33,719 respondents and 21 countries (with an average cluster size of 1,606) and yielded a good fit (CFI = 0.98, RMSEA = 0.025, $SRMR_{within}$ = 0.001; $SRMR_{between}$ = 0.016). The intra-class correlation (ICC) showed that 16% of the variance of intergroup contact was explained by contextual effects. These contextual effects explained 12% of the variance in the case of generalized trust and 6% for quality of life. Results of the short- and long-term effects of religious diversity are reported in Table S8. Mediation results are reported as indirect effects and a total indirect effect (Fig. S1).

Additional Analyses

Measurement quality of our diversity variable. Our diversity measures were developed using individual data from the representative samples in the analyzed surveys. To test the accuracy of our estimation method, we compared our religious diversity scores with those of popular measures developed with different procedures. Perhaps the most popular diversity dataset is that of Alesina and colleagues (21), in which the authors computed religious diversity indices for 190 countries using the Herfindahl formula. Data on the proportion of religious groups in each country was extracted from the Encyclopedia Britannica and the Altas Narodov Mira. We compared our diversity data from the WVS with Alesina and colleagues' data matching the year and country and found that both datasets were highly correlated (r = 0.81, P < 0.001, n = 97).

Another popular measure of religious diversity is the religious diversity index developed by the Pew Research Center (22). For this index, Pew used the Herfindahl formula with "(…) religious composition information from about 2,500 data sources, including censuses, demographic surveys, general population surveys and other studies – the largest project of its kind to date" (22, p. 51). We matched the Pew data with the closest available year for every given country and found that both datasets were highly correlated (r = 0.73, P < 0.001, n = 90). We note that Alesina's data range from 1980 to 2002 matching earlier waves of the WVS, whilst the Pew data corresponds to 2010 and, as such, the reported correlation coefficients indicate high correlations across the multiple waves of our WVS data.

Because there were fewer countries in the ESS and LB, we aggregated both and found our religious diversity measures to be highly correlated with Alesina's data (Pearson's r = 0.72, P < 0.001, n = 77), the Pew data (r = 0.48, P = 0.004, n = 34), and with our WVS estimates (r = 0.88, P < 0.001, n = 90). Moreover, note that we analyzed data from three independent surveys that used different sampling procedures and provided their own sampling weights. If the estimated proportion of religious groups was inaccurate due to sampling bias or other limitations, finding such consistency across our results would be extremely unlikely. This consistency together with the reported high correlations with other datasets warrants confidence in our diversity measures.

Measurement quality of our quality of life variable. This construct is a multidimensional concept with several different interpretations in the literature. It has been, for example, defined in terms of reported well-being (23), health status (24), or life satisfaction (25). Definitions and interpretations of the concept vary depending on the discipline and research under focus, but there is general agreement that quality of life cannot be reduced to a single factor. The World Health Organization defines quality of life as "an individual's perception of their position in life in the context of the culture and value systems in which they live and in relation to their goals, expectations, standards and concerns. It is a broad ranging concept affected in a complex way by the person's physical health, psychological state, personal beliefs, social relationships and their relationship to salient features of their environment" (26: p. 1).

To guide us in deciding which components of quality of life might be relevant to the current research, we investigated the theoretical reasons why religious diversity might influence people's quality of life. Previous empirical work suggests that intergroup interactions can lead to a threatened social identity (27) and heightened anxiety (28). Other scholars found that just anticipating such interactions can induce concerns about being negatively viewed by an interaction partner (29). At least initially, intergroup interactions can exacerbate intergroup bias, producing heightened stress, anxiety, less positive emotions, and outgroup avoidance [for a meta-analysis, see (30)]. These effects have been demonstrated with behavioral, self-reported, and physiological measures (31, 32).

These emotional effects can, in turn, influence one's health. Brain circuits can be remodeled by stress in ways that affect anxiety, memory, mood, and decision-making and, although such changes have adaptive value in particular short-term contexts, their persistence can be maladaptive over the long run (33). Prolonged exposure to stress also causes changes in the brain and body that can lead to disease. Thus, changes in religious diversity and perceptions of religious threat may heighten stress and anxiety emerging from intergroup interactions, and can take a physiological toll over time leading to diminished well-being and poor health outcomes. This reasoning fits classic theorizing in epidemiology, which argues that, among multiple psychosocial factors, rapid social change and shifting social networks are key determinants of diminished health (34).

To capture these effects, we assessed quality of life with multiple measures of well-being and self-reported health available from the surveys. Self-rated happiness, well-being, and health are, on their own, strong indicators of quality of life (35) and these three measures have been found to be highly correlated in the literature (36, 37). This was the case for the WVS ($\alpha = 0.65$, with only one factor emerging that explained 59% of the variance) and the ESS ($\alpha = 0.73$, with only one factor emerging that explained 66% of the variance). In the LB, where we were restricted to life satisfaction and health, we found a small but significant correlation between the two indicators ($r = 0.21$, $P < 0.001$, with only one factor emerging that explained 61% of the variance). In the mediation analysis, the questions about happiness, life satisfaction, and self-reported health were standardized and then averaged. A higher score on this variable indicated better quality of life ($\alpha = 0.73$, with only one factor emerging that explained 65% of the variance).

To better understand the metric properties of our quality of life latent construct, we conducted a confirmatory factor analysis. In this analysis, we allowed the errors of the three manifest variables (i.e., life satisfaction, happiness, and perceived health) to correlate at the individual level and created a latent variable at the higher level. With the WVS, our measurement model revealed a good fit (CFI = 0.99; RMSEA = 0.001; $SRMR_{within} = 0.001$; $SRMR_{between} = 0.008$) with item loadings being 0.79 or greater. The ESS showed similar results with a good fit (CFI = 0.99; RMSEA = 0.001; $SRMR_{within} = 0.001$; $SRMR_{between} = 0.001$) with item loadings being 0.73 or greater. As specified in our modeling strategy, the LB only contained two indicators (i.e., life satisfaction and health) and, as such, we did not create a manifest variable. However, we examined this measure's metric quality by correlating scores from each country*wave with life expectancy at birth data from the World Bank. Life expectancy is often used as an objective indicator of quality of life and, in fact, the two measures were highly correlated ($r = 0.433$, $P < 0.001$, $n = 70$), suggesting that our measure is tapping into the desired construct.

Main analysis with alternative diversity measures. To capture other facets of religious diversity and test the robustness of our findings, we drew on the biological sciences and computed two additional indices popular for measuring biodiversity. We used the Shannon diversity index (38), which is identical to the Herfindahl index, but puts relatively more weight on the number of individuals belonging to smaller groups [1]. This is a valuable measure because it reflects people's common tendency to overestimate the number of minority group members in society (39).

$$\mathrm{H} = \sum_{i=1}^{R} \ln p_i^{pi} \qquad [1]$$

We also used the evenness index (40), which refers to how equal in size the different species in a particular ecosystem are [2]. According to this index, a society is most diverse when the different religious groups tend to be fewer and of a similar size. This is a useful measure because, in these cases, conflict between groups is more likely to occur (41). H' is derived from the Shannon index and $\mathrm{H'}_{max}$ is the highest possible value of H' considering that that all groups are equally likely.

$$J' = \frac{H'}{H'_{max}} \qquad [2]$$

We then performed our main analyses and substituted the Herfindahl index by the Shannon and Evenness indices. As shown in Table S9, results with the Shannon index were identical to those with the Herfindahl index, underlining the robustness of our results. Analysis of the evenness index, however, revealed no effects of religious diversity.

These findings suggest that it is the increase in size and in quantity of the minority religious groups (as captured by both Herfindahl and Shannon indices) that are motivating the negative impact of changes in religious diversity on quality of life. In contrast, having fewer religious groups of equal in size (i.e., evenness) does not affect quality of life. With these findings it is possible to better investigate in which contexts increases in religious diversity impact quality of life. These contexts likely include homogenous countries that are starting to become more diverse or countries that are already diverse with multiple minority religious groups increasing in size. In countries with fewer religious groups, but of similar size, increasing diversity in terms of the groups becoming more even in size has no immediate implications for individuals' quality of life, perhaps because these changes are less visible, resulting in smaller shifts in individuals' perceived immediate environment.

Analyses controlling for additional contextual variables. In our diversity indices, we accounted for the proportion of individuals with different religious affiliations but did not include in these indices the proportion of secular individuals. Although we think this is the correct approach as secularity is not a form of religion, it is possible that the different levels of societies' secularity could affect the identified relationship between religious diversity and quality of life. To test this possibility, we repeated our main analyses controlling for the proportion of secular individuals in each country, providing an estimate of a country's secularity. Similar to our diversity indices, this measure was created from the individual data and, more specifically, we calculated the proportion of individuals claiming to have "no religion". As shown in Table S10, results from these analyses confirmed our main predictions suggesting that secularism did not interfere with our findings.

Other variables such as unemployment rate, life expectancy, population size, corruption and inflation have been though to affect quality of life and may affect the relationships described in our results (3, 4, 7, 8). To examine whether this is the case, we controlled for these additional variables. Data on unemployment rate, life expectancy, population size, and inflation were extracted from the World Bank, while data on corruption was taken from the International Country Risk Guide. These data were matched by country and year in the analyzed surveys.

Results from this analysis revealed that our more comprehensive models had higher predictive power than models in our main analysis, as shown by lower scores in the fit indicators (i.e., log-likelihood, Akaike information criterion, and Bayesian information criterion) and lower proportion of unexplained variance. Table S11 shows that results were the same as those found in our main analysis, providing greater confidence about the consistency of our findings.

Other researchers using an identical model specification to our main analysis (42) have entered into their models an interaction between average levels of the independent level (i.e., our religious diversity time-invariant coefficient) and time. This interaction indicates whether the effects of religious diversity on quality of life would vary as a function of specific points in time and we tested for this possibility. Results indicated that the average levels of religious diversity did not depend on a specific wave, with non-significant interaction terms in all surveys (WVS: b = -0.039, P = 0.480.; ESS: b = -0.054, P = 0.220; and LB: b = 0.001, P = 0.454). Across the three surveys, controlling for this interaction did not change any of our main results

Analysis specific to religious groups. In our main analysis, we included all respondents in the surveys and controlled for religious affiliation. However, there is the possibility that individuals belonging to different religious groups may diverge in their reactions to changes in religious diversity. To test this possibility, we performed our analysis for Catholics and then separately for all other religious affiliations. We aggregated all other religions into one category, because most of the religious groups were too small in size to allow a reliable comparison. An exception were religious groups such as Muslims that in the WVS were similar in size to Catholics, but, given their geographic concentration, analysis would result in a significant reduction of the countries included in the analyses. As shown in Table S12, results from this analysis revealed the same effects for Catholics and the other remaining religious groups. The only exception was the group of Catholics in the ESS for whom the main result, although not approaching statistical significance, was in the same direction as all other results.

Test of the main analysis with the one wave approach used with the ESS. For the mediation analysis with the ESS, we used the last available wave of individual data and modeled longer-term and short-term changes in religious diversity using country-level data estimated from previous waves. Specifically, we compared a model examining a longer-term change in religious diversity (i.e., change from Wave 1 to Wave 7) to a model examining short-term change (i.e., change between Wave 6 to Wave 7). To offer an alternative statistical approach to our main analysis, we replicated this method with the WVS and the LB. As with the ESS, in both surveys we only analyzed countries that provided individual data to the last wave of the WVS (wave 6, year 2010-14) and the LB (wave 17, year 2015) and used country-level data from wave 1 to the last available wave to compute differences in these variables.

With this approach, it is critical to have no missing data at the country-level in any of the waves because countries with missing values in one of these variables are omitted automatically in the analyses. Having a different array of countries in our models would render any comparison of effects of religious diversity unreliable. To address this concern, we followed the same approach we used with the ESS and substituted data from the nearest available wave. With the LB, as with the ESS, this approach was not problematic given that there were few missing cases. However, individual data on health were only available in five adjacent waves, not permitting us to test longer-term changes. To address this limitation, we used 'life satisfaction' as the only indicator of quality of life as this variable was available throughout the survey.

With the WVS we also had to make some adjustments. First, at the country-level there are several missing cases for a variety of reasons: the WVS includes a wider range of countries,

of which some are poorly documented; the first waves only include a few countries and for this reason we cannot use individual data to estimate religious diversity; and data for the first waves was collected in the 1980's and early 1990's, a period that was poorly covered by our government stability and internal conflict indices. Substituting data from the nearest available wave would result in various countries having multiple replicated values and, for this reason, we used linear interpolation to estimate missing values.

For both the WVS and LB, we included individual level controls from the main analysis, having to adapt some of them to variables that were available in the analyzed waves. In the WVS, these controls include sex, age, age squared, education (highest education level attained), income (scale of incomes and family saving during past year), interest in politics, political orientation, religious affiliation, marital status, employment status, religiosity, how often attend religious services, whether respondent is a member of a church or religious organization), and trust in others (generalized trust and other two trust items specific to the analyzed wave: trust in people of another religion and trust in people from another nationality).

With the LB, we controlled for sex, age, age squared, education, income, size of town, political orientation, religious affiliation, marital status, employment status, religiosity, and generalized trust. In both surveys we adjusted for the same contextual variables used in the main analysis: GDP, the Gini coefficient, government stability, and internal conflict. We computed a series of models accounting for the shortest possible difference in religious diversity (i.e., from the last to the penultimate wave) to the longest possible difference (i.e., changes from the last to the first wave of the surveys). For each model, we controlled for levels of religious diversity as in the ESS analysis.

The WVS analysis included the responses of 46,674 individuals and 41 countries, with an average of 1,138 respondents per country. The LB analysis included 11,647 respondents, distributed across 18 countries, with an average of 647 respondents per country. Results with both surveys indicated that short-term differences have a negative impact on quality of life and that this effect tends to become more positive (or null) as the gap between the last and the other waves increases (see Figs. S2 and S3). Note that both the WVS and LB diverge in several aspects and an important difference is the gaps between waves. The LB contains shorter gaps between waves, allowing for a more sensitive analysis of short-term effects, whilst the WVS has wider gaps and with its 30 years of data permits a better perspective on the longer-term effects of religious diversity. Results from both analyses were remarkably consistent with findings from our main analysis.

Unrepresentative samples in the WVS. Some scholars have noted that the expansion of this survey to include developing countries resulted in a few unrepresentative samples (43). These countries are specified in the survey documentation and include the first waves of Argentina, Chile, China, India, Mexico, and Nigeria, where samples consisted of more educated respondents living in urban areas. Although some of these country-waves were not included in our analyses because they did not have scores in one of our country-level variables, we repeated our main analysis excluding the remaining country-waves. The resulting analysis comprised a total of 68 countries, 137 country-waves, and 155,145 respondents. Our findings with this survey were maintained such that changes in religious diversity had a negative association with quality of life (b = -0.390, P = 0.034). As in our main analysis, there were no effects of average levels of religious diversity on quality of life (b = 0.001, P = 0.995. Given that results were identical, we preferred to maintain these countries in our main analysis.

Additional analysis of the mediation effects of intergroup contact. To better ascertain the evolving nature of intergroup contact and its mitigating effects, we replicated our mediation analysis accounting for all possible gaps (i.e., gaps between wave 7 and all the remaining waves), examining the indirect effects involving intergroup contact. An analysis of these indirect effects (i.e., effects of changes in diversity via contact only and via contact and trust) suggests that the mitigating effects of contact only emerge after a 6-year gap (see Fig. S4). Specifically, from a 2- to 6-year gap, the indirect effects via intergroup contact and via intergroup contact and trust do not statistically differ from zero (Ps > 0.123). However, from an 8-year gap onwards, both indirect effects gradually increase in size and become statistically significant (8-year gap indirect effect via contact and via contact and trust: 0.049, SE = 0.021, P = 0.024 and 0.008, SE = 0.004, P = 0.029; 10-year gap indirect effect via contact and via contact and trust: 0.0046, SE = 0.015, P = 0.003 and 0.007, SE = 0.003, P = 0.022; and the 12-year contact via contact and via contact and trust: 0.045, SE = 0.013, P = 0.001 and 0.007, SE = 0.002, P = 0.003). These positive indirect effects via contact completely neutralize any of the negative effects of religious diversity on quality of life (the total indirect effects were non-significant, Ps > 0.182). This analysis is important for understanding the timeframe at which these mechanisms evolve. Specifically, from the moment that religious diversity increases, it takes at least eight years before intergroup contact reaches a level sufficient to neutralise initial negative effects associated with these demographic changes. This eight-year timeframe is, of course, just a reference from European data, but our results with data from other regions support a similar timescale by showing that the negative effects of changes in religious diversity dissipate after a 6-year gap in the WVS (Fig. S2). With the LB we found that negative effects of religious diversity dissipate somewhat faster (i.e., after a 4-year gap, Fig. S3). This timeframe discrepancy may be due to contextual differences that may facilitate intergroup contact such as lower levels of segregation or discrimination. An understanding of these nuances falls beyond the aim of the present study.

A final note about causality. We were restricted to computing our analyses using exclusively correlational data, limiting our inferences about causality. This limitation has been acknowledged by other researchers (44, 45), who have identified a dearth of longitudinal studies examining the effects of social diversity. As these authors recognize, this limitation is critical especially for within-country studies, where individuals favoring or avoiding social diversity may move between neighborhoods in order to match their preferences. This self-selection issue is, however, less relevant in our work given that it is relatively unlikely that someone would move to another country because of changes in religious diversity.

In addition, if we inverted the causal relationship inferred in our reasoning, our results would show countries' quality of life to be negatively associated with changes in religious diversity. This reverse causal explanation makes less theoretical sense as people are more likely to migrate to countries that offer better conditions. These conditions could be, for example, greater wealth, political stability, and absence of conflict, which we controlled for in our analyses. It would thus be expected that countries with higher levels of quality of life would attract immigration and increase their religious diversity, which this is the opposite of what is shown by our data.

A more complex issue is that of the inverse causality of the proposed mechanisms in our mediation analysis. Although our hypothesis was based on a theoretical framework [i.e., contact hypothesis (46)] supported by more than 60 years of research, it is plausible the lower levels of trust emerging from changes in religious diversity may curb possibilities of future intergroup contact. To test this possibility, we ran our mediation model with the reverse causal relationship

between trust and intergroup contact (i.e., changes in religious diversity → trust → intergroup contact → quality of life; Fig. S5). The results from this analysis support our initial findings. We find that in a short-term analysis, changes in diversity are associated with lower trust, which in turn is associated with less intergroup contact and lower quality of life. In the long-term analysis, however, we find that this path is not statistically significant (Fig. S5), providing additional evidence for our argument that the long-term association involving intergroup contact is positive and attenuates initial negative effects of these demographic changes. In fact, if the initial short-term effect of trust reducing intergroup contact could set the tone for future intergroup relations, we would observe, with time, more marked negative associations and this is not what is shown by our data. This perspective is in line, more generally, with recent developments contending that negative outcomes of initial intergroup contact tend to dissipate with time (47).

Table S1. Religious diversity average scores and specific scores of each wave of the World Values Survey.

Country	Average diversity	W1 (1981-84)	W2 (1990-94)	W3 (1995-98)	W4 (1999-04)	W5 (2005-08)	W5.5 (2008)	W6 (2010-14)
Albania	0.4506	-	-	0.4394	0.4987	0.4136	-	-
Argentina	0.1960	-	-	0.1822	0.1840	0.2002	-	0.2730
Armenia	0.0659	-	-	0.0477	-	0.0799	-	0.0703
Australia	0.6113	-	-	0.5257	-	0.6191	-	0.6890
Austria	0.1727	-	0.1487	-	0.1532	0.2162	-	-
Belarus	0.2426	-	-	0.2209	0.2462	0.2454	-	0.2578
Belgium	0.1218	0.0942	0.0634	-	0.1450	0.1843	-	-
Brazil	0.4058	-	0.2101	-	-	0.4680	-	0.5395
Bulgaria	0.2988	-	0.3490	0.3441	0.2837	0.2224	0.2950	-
Canada	0.5703	0.5428	0.5541	-	0.5943	0.5899	-	-
Chile	0.3082	-	0.2954	0.3232	0.3184	0.3459	-	0.2580
China	0.6480	-	0.7109	-	0.6806	0.6826	-	0.5178
Colombia	0.2335	-	-	0.1818	-	0.2617	-	0.3566
Croatia	0.0607	-	-	0.0722	0.0333	0.0767	-	-
Cyprus	0.3625	-	-	-	0.5079	0.5148	0.0647	-
Czech Rp.	0.1628	-	0.2308	0.0948	-	-	-	-
Denmark	0.0523	0.0599	0.0460	-	0.0542	0.0492	-	-
Estonia	0.4967	-	-	0.5097	-	-	-	0.4836
Finland	0.1744	0.6087	0.0568	0.1444	0.0697	0.1071	0.0599	-
France	0.1767	0.0857	0.1131	-	0.1431	0.3047	0.2369	-
Germany	0.5291	0.5061	0.5089	0.4925	0.5449	0.5233	0.5412	0.5869
G. Britain	0.4659	0.3386	0.3378	-	0.4387	0.6785	0.5358	-
Greece	0.0524	-	-	-	0.0450	0.0598	-	-
Hungary	0.4242	0.4210	0.4110	0.4124	0.4115	0.3886	0.5004	-
Iceland	0.0754	0.0491	0.0679	-	0.0932	0.0911	-	-
India	0.3413	-	0.1993	0.3306	0.3674	0.3455	-	0.4640
Indonesia	0.1330	-	-	-	0.1310	0.1350	-	-
Iran	0.0947	-	-	-	0.0324	0.1569	-	-
Iraq	0.3640	-	-	-	0.5417	0.5304	-	0.0199
Ireland	0.0706	0.0496	0.0572	-	0.0699	0.1055	-	-
Italy	0.0166	0.0142	0.0290	-	0.0122	0.0112	-	-
Japan	0.2594	0.2737	0.2707	0.2947	0.2726	0.2651	-	0.1796
Jordan	0.0593	-	-	-	0.0845	0.0346	-	0.0588
Latvia	0.6795	-	0.6876	0.6741	0.6821	0.6741	-	-
Lithuania	0.1345	-	0.1462	0.1493	0.1261	0.1162	-	-
Lxmbourg	0.1250	-	-	-	0.0644	0.1856	-	-
Malaysia	0.5759	-	-	-	-	0.6036	-	0.5481
Mexico	0.2228	0.1562	0.1268	0.3468	0.1588	0.2171	-	0.2681
Moldova	0.0788	-	-	0.0169	0.1130	0.1088	0.0764	-
Morocco	0.0089	-	-	-	0.0000	0.0116	-	0.0149
Netherlands	0.5876	0.5296	0.5013	-	0.5638	0.6839	0. 5554	0.6914
N. Zealand	0.6770	-	-	0.3752	-	0.8077	-	0.8480
Nigeria	0.5451	-	-	-	0.4408	-	-	0.6494
Norway	0.1118	0.0749	0.0590	0.1308	-	0.1403	0.1540	-
Pakistan	0.2583	-	-	-	0.4020	-	-	0.1145

Country	Average diversity	W1 (1981-84)	W2 (1990-94)	W3 (1995-98)	W4 (1999-04)	W5 (2005-08)	W5.5 (2008)	W6 (2010-14)
Peru	0.2620	-	-	0.2009	0.2231	0.3220	-	0.3019
Philippines	0.3352	-	-	0.2783	0.3431	-	-	0.3841
Poland	0.0414	-	0.0477	0.0496	0.0191	0.0642	0.0414	0.0263
Portugal	0.0786	-	0.0502	-	0.0660	0.1197	-	-
Romania	0.1916	-	0.1035	0.1613	0.2012	0.2326	0.2097	0.2410
Russia	0.2085	-	0.3044	0.1858	0.1552	0.1909	0.1713	0.2434
Serbia	0.2592	-	-	0.2885	0.2618	0.2272	-	-
Singapore	0.7739	-	-	-	0.7456	-	-	0.8022
Slovakia	0.2458	-	0.1952	0.2749	0.2803	0.1977	-	-
Slovenia	0.1198	-	0.0925	0.1159	-	0.1570	0.1295	0.1398
South Korea	0.6744	0.5996	0.7139	0.6777	0.6987	0.6840	-	0.6726
Spain	0.0437	0.0245	0.0330	0.0514	0.0508	0.0206	-	0.0821
Sweden	0.1324	0.0584	0.1292	0.1474	0.0814	0.1741	0.1278	0.2086
Switzerland	0.5578	-	0.5262	0.5172	-	0.5631	0.6246	-
Taiwan	0.6500	-	-	0.5381	-	0.6716	-	0.7404
Thailand	0.0599	-	-	-		0.0561	-	0.0638
Turkey	0.0095	-	-	0.0246	0.0132	0.0015	0.0043	0.0038
Ukraine	0.3123	-	-	0.1936	0.3641	0.2196	0.5273	0.2568
U. States	0.6397	0.5005	0.6226	0.6609	0.7112	0.6600	-	0.6832
Uruguay	0.4336	-	-	0.3323	-	0.4139	-	0.5547
Venezuela	0.1657	-	-	0.1563	0.1751	-	-	-
Vietnam	0.5550	-	-	-	0.5828	0.5271	-	-
Zimbabwe	0.5724	-	-	-	0.7614	-	-	0.3835

Note. The European Values Survey provided additional Wave 5 individual data. These data were collected in the last year of Wave 5 and provided additional data to some countries that were already in that wave of the WVS between 2005/06. So we could use as much data as possible, we coded the additional data from the EVS as Wave 5.5 given that these countries were surveyed in the last year of Wave 5. Colombia, Mexico, and Slovenia also provided additional 1998 data and were coded as Wave 3.5. The religious diversity index scores for these countries are not depicted in the table and were 0.1337, 0.2855, and 0.0836 respectively.

Table S2. Religious diversity average scores and specific scores for each wave of the European Social Survey.

Country	Average diversity	W1 (2002-03)	W2 (2004-05)	W3 (2006-07)	W4 (2008-09)	W5 (2010-11)	W6 (2012-13)	W7 (2013-14)
Austria	0.2313	-	0.1993	0.1841	-	-	-	0.3035
Belgium	0.2969	0.2172	0.2363	0.2129	0.2900	0.3253	0.3825	0.4136
Cyprus	0.0338	-	-	-	0.0214	0.0205	0.0594	-
Czech Rp.	0.2491	0.2556	0.2205	-	0.2550	0.1793	0.2850	0.2993
Denmark	0.1668	0.1451	0.1355	0.1426	0.1529	0.1858	0.1971	0.2086
Estonia	0.5106	-	0.5928	0.5106	0.5133	0.5549	0.4865	0.4058
Finland	0.1055	0.0797	-	0.0710	0.0823	0.0989	0.1365	0.1645
France	0.3311	-	-	0.3004	0.2816	0.3504	0.3589	0.3642
Germany	0.5924	0.5929	0.5940	0.5700	0.5791	0.5997	0.6063	0.6046
G. Britain	0.5810	0.5264	-	-	0.5319	0.6111	0.6205	0.6150
Greece	0.0810	0.0840	0.0842	-	0.0727	0.0833	-	-
Hungary	0.4199	0.4239	-	0.4710	0.4195	0.4141	0.4028	0.3883
Ireland	0.1262	0.0944	0.0739	0.1227	0.1589	0.1483	0.1565	0.1286
Israel	0.3070	0.2891	-	-	0.2894	0.3142	0.3342	0.3080
Lxmbourg	0.4221	0.4210	0.4231	-	-	-	-	-
Netherlands	0.6411	0.6463	0.6107	0.6658	0.6307	0.6248	0.6476	0.6616
Norway	0.2240	0.2263	0.2535	0.2050	0.1747	0.2264	0.2551	0.2270
Poland	0.0313	0.0284	0.0289	0.0249	0.0385	0.0435	0.0247	0.0302
Portugal	0.0750	0.0552	0.0556	0.0574	0.0728	0.0967	0.0851	0.1024
Russia	0.2593	-	-	0.2565	0.2595	0.2202	0.3009	-
Slovakia	0.3066	-	0.3539	0.3156	0.2772	0.2923	0.2940	-
Slovenia	0.1457	0.1269	0.1224	0.1459	0.1566	0.1197	0.1558	0.1923
Spain	0.1243	0.0576	0.1155	0.1167	0.1289	0.1368	0.1530	0.1615
Sweden	0.3292	0.2895	0.2399	0.2978	0.3170	0.3623	0.3941	0.4040
Switzerland	0.5933	0.5478	0.5698	0.5828	0.6167	0.6088	0.6050	0.6222
Turkey	0.0236	-	0.0243	-	0.0229	-	-	-
Ukraine	0.3100	-	0.2940	0.3407	0.3005	0.3136	0.3010	-

Table S3. Religious diversity average scores and specific scores for each wave of the Latino Barometro.

Country	Average diversity	W3 (1997)	W5 (2000)	W6 (2001)	W8 (2003)	W9 (2004)	W10 (2005)	W11 (2006)	W12 (2007)	W13 (2008)	W14 (2009)	W15 (2010)	W16 (2011)	W17 (2013)	W18 (2015)
Argentina	0.1990	0.1664	0.1853	0.2008	0.2082	0.1922	0.1670	0.1568	0.1899	0.2149	0.2119	0.2113	0.2254	0.1982	0.2574
Bolivia	0.3134	0.2188	0.3595	0.3037	0.3518	0.3511	0.3325	0.2926	0.2921	0.3494	0.2708	0.3267	0.2816	0.3118	0.3447
Brazil	0.4405	0.4434	0.4627	0.4161	0.4243	0.4243	0.4254	0.4297	0.4210	0.4065	0.4722	0.4530	0.4449	0.4529	0.4910
Chile	0.3446	0.2574	0.3255	0.3277	0.3429	0.3185	0.3597	0.3495	0.4039	0.3324	0.3038	0.3849	0.3653	0.3701	0.3823
Colombia	0.2219	0.1683	0.1936	0.2217	0.1176	0.0988	0.2259	0.2448	0.2440	0.1169	0.2572	0.2935	0.2973	0.3204	0.3068
Costa Rica	0.3900	0.2782	0.3034	0.3397	0.3673	0.4028	0.3994	0.4460	0.3871	0.4109	0.4261	0.4008	0.4179	0.4492	0.4307
Dom. Rp.	0.3249	-	-	-	-	0.3424	0.3612	0.2936	0.2206	0.2114	0.2629	0.2303	0.4008	0.4197	0.5060
Ecuador	0.2101	0.1637	0.1949	0.1297	0.1937	0.1889	0.2092	0.2033	0.2092	0.2580	0.2123	0.2133	0.2321	0.2573	0.2751
El Salvador	0.5062	0.5680	0.5100	0.4582	0.4746	0.4935	0.4844	0.4701	0.5527	0.4936	0.4864	0.4959	0.5197	0.5246	0.5549
Guatemala	0.5175	0.5944	0.5167	0.5084	0.5006	0.4822	0.4878	0.4765	0.5023	0.5100	0.5130	0.5000	0.5278	0.6006	0.5243
Honduras	0.5177	0.3952	0.5019	0.4429	0.5174	0.5104	0.5361	0.5239	0.5261	0.5454	0.5045	0.4965	0.5195	0.6247	0.6028
Mexico	0.1907	0.2673	0.0741	0.2593	0.1621	0.1583	0.2448	0.1138	0.2081	0.2038	0.1820	0.1853	0.1788	0.2218	0.2106
Nicaragua	0.4715	0.3016	0.3149	0.3609	0.5076	0.4505	0.4739	0.4856	0.5147	0.5100	0.5044	0.5168	0.5130	0.5779	0.5698
Panama	0.3267	0.1931	0.2575	0.3511	0.3272	0.3059	0.2845	0.3484	0.3080	0.3130	0.3271	0.3302	0.3743	0.3895	0.4645
Paraguay	0.1619	0.1917	0.1176	0.1451	0.1623	0.1649	0.1796	0.1733	0.1705	0.1702	0.1437	0.1501	0.1317	0.1663	0.1993
Peru	0.2870	0.1701	0.2122	0.1663	0.2934	0.3358	0.2986	0.2773	0.3705	0.3174	0.2807	0.3096	0.3104	0.3133	0.3630
Uruguay	0.3203	0.2555	0.2227	0.2250	0.2774	0.2844	0.3060	0.3502	0.3315	0.3476	0.3779	0.3195	0.3219	0.4246	0.4397
Venezuela	0.2050	0.1026	0.1545	0.1499	0.1198	0.1606	0.1525	0.2804	0.3031	0.2998	0.1265	0.2317	0.2386	0.2514	0.2984

Note. Waves 1, 2, 4, and 7 did not provide data on any of our outcome indicators and were not included in the analyses.

Table S4. Main analysis with the World Values Survey.

			Multi-level structural equation model		
	Variables	Without control variables	Life Satisfaction	Self-reported Health	Happiness
Within level coefficients	Sex	-	0.113 (0.027)***	-0.055 (0.011)***	0.043 (0.009)***
	Age	-	-0.061 (0.005)***	-0.021 (0.002)***	-0.020 (0.001)***
	Age^2	-	6.023 (0.502)***	0.703 (0.242)**	1.725 (0.135)***
	Education	-	0.032 (0.009)**	0.032 (0.003)***	0.012 (0.003)***
	Subjective income	-	0.493 (0.033)***	0.125 (0.006)***	0.111 (0.008)***
	Interest in politics	-	0.020 (0.016)	0.018 (0.004)***	0.011 (0.005)*
	Political views	-	-0.047 (0.005)***	-0.006 (0.001)***	-0.009 (0.001)***
	Religion: ref. no religion				
	Roman Catholic	-	-0.020 (0.042)	-0.014 (0.016)	-0.019 (0.011)
	Protestant	-	0.101 (0.048)*	0.030 (0.017)	0.022 (0.018)
	Orthodox	-	-0.099 (0.046)*	-0.054 (0.018)**	-0.055 (0.017)**
	Jewish	-	-0.147 (0.117)	-0.029 (0.059)	-0.097 (0.029)**
	Muslim	-	-0.083 (0.071)	0.013 (0.025)	-0.018 (0.030)
	Other religion	-	-0.001 (0.048)	-0.019 (0.016)	0.003 (0.015)
	Marital status: ref. married				
	Separated	-	-0.738 (0.058)***	-0.109 (0.022)***	-0.302 (0.019)***
	Divorced	-	-0.551 (0.039)***	-0.058 (0.014)***	-0.254 (0.016)***
	Widowed	-	-0.512 (0.037)***	-0.120 (0.015)***	-0.263 (0.014)***
	Never married	-	-0.392 (0.032)***	-0.046 (0.008)***	-0.187 (0.012)***
	Other	-	-0.165 (0.049)***	-0.039 (0.015)**	-0.086 (0.014)***
	Employment status: ref. employed				
	Self-employed	-	-0.033 (0.035)	0.005 (0.011)	-0.001 (0.009)
	Other	-	-0.105 (0.025)***	-0.112 (0.012)***	-0.017 (0.008)*
	Attend Religious services	-	0.034 (0.005)***	0.012 (0.002)***	0.012 (0.002)***
	Level of religiosity	-	0.151 (0.028)***	-0.002 (0.009)	0.052 (0.009)***
	Generalized trust	-	0.322 (0.036)***	0.131 (0.008)***	0.091 (0.010)***
	Size of town	-	N/A	N/A	N/A
			Quality of life (latent variable)		
Between level coefficients	Herfindahl (average)	0.298 (0.319)		0.006 (0.077)	
	Herfindahl (change)	0.042 (0.313)		-0.393 (0.178)*	
	Wave	-		0.027 (0.013)*	
	GDP (average)	-		0.820 (0.214)***	
	GDP (change)	-		0.167 (0.205)	
	GINI (average)	-		0.027 (0.128)	
	GINI (change)	-		0.012 (0.006)*	
	Government Stability (average)	-		-0.045 (0.026)	
	Government Stability (change)	-		0.001 (0.007)	
	Internal Conflict (average)	-		-0.006 (0.021)	
	Internal Conflict (change)	-		0.015 (0.011)	
Unexplained variance		0.608 (0.110)		0.018 (0.006)	
Fit indicators	Loglikelihood	41.092		8.583	
	Akaike information criterion (AIC)	4 038 048		1 336 884	
	Bayesian information criterion (BIC)	4 038 203		1 337 834	
Sample size	Countries; country-waves; respondents	105; 327; 465,943		68; 142; 160,645	

Note. * P < 0.050; ** P < 0.010; *** P < 0.001

Table S5. Main analysis with the European Social Survey.

			Multi-level structural equation model		
	Variables	Without control variables	Life Satisfaction	Self-reported Health	Happiness
Within level coefficients	Sex	-	0.099 (0.020)***	-0.054 (0.013)***	0.108 (0.019)***
	Age	-	-0.070 (0.006)***	-0.023 (0.002)***	-0.064 (0.005)***
	Age^2	-	6.165 (0.524)***	0.386 (0.172)*	5.239 (0.368)***
	Education	-	0.005 (0.003)	0.019 (0.002)***	0.007 (0.003)*
	Subjective income	-	0.810 (0.047)***	0.187 (0.007)***	0.582 (0.030)**
	Interest in politics	-	0.002 (0.014)	0.011 (0.004)**	0.040 (0.017)**
	Political views	-	-0.098 (0.013)***	-0.020 (0.004)***	-0.045 (0.012)*
	Religion: ref. no religion				
	Roman Catholic	-	0.002 (0.033)	0.001 (0.016)	-0.052 (0.025)**
	Protestant	-	0.043 (0.033)	0.038 (0.016)*	0.040 (0.026)*
	Orthodox	-	-0.213 (0.051)***	-0.057 (0.015)***	-0.183 (0.030)*
	Jewish	-	-0.568 (0.105)***	-0.077 (0.029)**	-0.414 (0.055)
	Muslim	-	-0.095 (0.098)	0.005 (0.044)	-0.154 (0.053)
	Other religion	-	-0.094 (0.048)	-0.043 (0.023)	-0.083 (0.047)*
	Marital status: ref. married				
	Separated	-	-0.703 (0.066)***	-0.026 (0.017)	-0.787 (0.073)***
	Divorced	-	-0.410 (0.044)***	-0.028 (0.012)**	-0.559 (0.046)***
	Widowed	-	-0.447 (0.029)***	-0.063 (0.013)***	-0.788 (0.037)***
	Never married	-	-0.399 (0.028)***	-0.085 (0.010)***	-0.556 (0.032)***
	Other	-	N/A	N/A	N/A
	Employment status: ref. employed				
	Self-employed	-	0.093 (0.016)***	0.057 (0.013)***	0.053 (0.023)*
	Other	-	0.013 (0.061)	0.040 (0.023)	0.006 (0.061)
	Attend Religious services	-	0.032 (0.008)***	0.021 (0.004)***	0.010 (0.008)**
	Level of religiosity	-	0.052 (0.007)***	-0.007 (0.002)**	0.054 (0.007)***
	Generalized trust	-	0.138 (0.006)***	0.031 (0.002)***	0.109 (0.005)**
	Size of town	-	-0.034 (0.009)***	0.001 (0.004)	-0.024 (0.009)**
				Quality of life (latent variable)	
Between level coefficients	Herfindahl (average)	0.443 (0.760)		-0.109 (0.114)	
	Herfindahl (change)	-0.467 (0.610)		-1.073 (0.412)**	
	Wave	-		0.033 (0.015)*	
	GDP (average)	-		0.512 (0.189)**	
	GDP (change)	-		-0.300 (0.173)	
	GINI (average)	-		0.000 (0.005)	
	GINI (change)	-		-0.006 (0.005)	
	Government Stability (average)	-		0.002 (0.031)	
	Government Stability (change)	-		-0.007 (0.014)	
	Internal Conflict (average)	-		-0.012 (0.020)	
	Internal Conflict (change)	-		0.046 (0.032)	
Unexplained variance		0.994 (0.227)		0.009 (0.003)	
Fit indicators	Loglikelihood	81.318		11.275	
	Akaike information criterion (AIC)	3 559 537		1 246 940	
	Bayesian inform. criterion (BIC)	3 559 687		1 247 564	
Sample size	Countries; country-waves;	36; 167;		27; 70;	
	Respondents	321,898		126,634	

Note. * P < 0.050; ** P < 0.010; *** P < 0.001

Table S6. Main analysis with the Latino Barometro.

			Multi-level structural equation model
	Variables	Without control variables	Quality of life (life satisfaction and health)
Within level coefficients	Sex	-	-0.076 (0.012)***
	Age	-	-0.020 (0.002)***
	Age^2	-	1.515 (0.251)***
	Education	-	0.049 (0.005)***
	Subjective income	-	0.259 (0.014)***
	Interest in politics	-	0.027 (0.008)**
	Political views	-	0.014 (0.003)***
	Religion: ref. no religion		
	Roman Catholic	-	0.149 (0.099)
	Protestant	-	0.140 (0.120)
	Orthodox	-	N/A
	Jewish	-	0.167 (0.109)
	Muslim	-	N/A
	Other religion	-	0.143 (0.110)
	Marital status: ref. married		
	Single	-	-0.034 (0.018)
	Separated/Divorced/Widow	-	-0.095 (0.017)***
	Employment status: ref. employed		
	Self-employed	-	-0.070 (0.013)***
	Other	-	-0.077 (0.012)***
	Attend Religious services	-	N/A
	Level of religiosity	-	0.070 (0.009)***
	Generalized trust	-	0.114 (0.016)***
	Size of town	-	0.004 (0.005)
Between level coefficients	Herfindahl (average)	-0.176 (0.459)	0.294 (0.518)
	Herfindahl (change)	0.036 (0.531)	-1.473 (0.634)*
	Wave	-	0.008 (0.020)
	GDP (average)	-	0.018 (0.027)
	GDP (change)	-	0.010 (0.018)
	GINI (average)	-	-0.030 (0.020)
	GINI (change)	-	-0.086 (0.035)*
	Government Stability (average)	-	0.056 (0.134)
	Government Stability (change)	-	0.024 (0.026)
	Internal Conflict (average)	-	-0.031 (0.067)
	Internal Conflict (change)	-	-0.042 (0.068)
Unexplained variance		0.100 (0.026)	0.060 (0.011)
Fit indicators	Loglikelihood	12.089	3.198
	Akaike information criterion (AIC)	275 743	139 255
	Bayesian inform. criterion (BIC)	275 790	139 538
Sample size	Countries; country-waves; respondents	18; 89; 97,361	18; 71; 51,401

Note. * P < 0.050; ** P < 0.010; *** P < 0.001

Table S7. Main variables of the mediation analyses (ESS wave 7).

	Religious diversity (Herfindahl)			Contact	Trust	Quality of Life
Country	**W1**	**W6**	**W7**	**W7**	**W7**	**W7**
Austria	0.2383	0.3036	0.3035	0.4125	-0.0904	0.0763
Belgium	0.2173	0.3826	0.4136	0.4952	-0.2204	0.1054
Czech Rp.	0.2556	0.2850	0.2993	-0.8967	-0.6436	-0.0425
Denmark	0.1451	0.1971	0.2086	0.4544	1.0709	0.2304
Estonia	0.5928	0.4865	0.4058	-0.5444	0.3248	-0.1187
Finland	0.0797	0.1365	0.1645	-0.3382	1.0183	0.2323
France	0.3004	0.3589	0.3642	0.3383	-0.2882	-0.2239
Germany	0.5929	0.6063	0.6046	0.5357	-0.0445	-0.0240
G. Britain	0.5264	0.6205	0.6150	0.7485	0.3317	0.0581
Hungary	0.4239	0.4028	0.3883	-0.8283	-0.7504	-0.2791
Ireland	0.0945	0.1565	0.1286	0.4635	0.2611	0.0985
Israel	0.2891	0.3342	0.3080	-1.7765	-0.1177	0.2601
Lithuania	0.1740	0.1212	0.1380	-1.1056	-0.4221	-0.3507
Netherlands	0.6463	0.6476	0.6616	0.6432	0.5341	0.0692
Norway	0.2263	0.2551	0.2270	0.8613	0.8401	0.1048
Poland	0.0284	0.0247	0.0302	-1.9928	-1.1572	-0.0675
Portugal	0.0552	0.0851	0.1024	-0.1248	-0.8017	-0.2496
Slovenia	0.1269	0.1558	0.1923	0.2068	-0.6033	-0.2054
Spain	0.0576	0.1530	0.1615	0.3265	-0.4261	-0.0520
Sweden	0.2895	0.3941	0.4040	1.3686	0.7966	0.1448
Switzerland	0.5478	0.6050	0.6222	0.7530	0.3879	0.2334

Note. Values for contact, trust, and quality of life indicate the average scores of these variables per country after being adjusted for all individual-level controls and centered such that a value of 0 indicates the average levels of the whole sample.

Table S8. ESS (wave 7) short- and long-term effects of religious diversity.

			Multi-level structural equation model		
	Variables	Without control variables	Trust	Intergroup contact	Quality of life
Within level coefficients	Sex	-	0.085 (0.021)***	-0.046 (0.030)	0.007 (0.009)
	Age	-	0.004 (0.001)***	-0.028 (0.002)***	-0.020 (0.002)***
	Age^2	-	-	-	1.131 (0.137)***
	Education	-	0.108 (0.007)***	0.106 (0.010)***	0.020 (0.004)***
	Subjective income	-	0.293 (0.017)***	0.060 (0.024)*	0.244 (0.015)***
	Political views (left-right scale)	-	-0.007 (0.011)	-0.019 (0.007)**	0.020 (0.003)***
	Religion: ref. no religion				
	Roman Catholic	-	-0.151 (0.036)***	0.002 (0.081)	-0.026 (0.017)
	Protestant	-	0.049 (0.028)	0.030 (0.081)	-0.027 (0.014)
	Orthodox	-	-0.301 (0.065)***	-0.499 (0.503)	-0.046 (0.036)
	Jewish	-	-0.074 (0.099)	1.254 (0.120)***	-0.092 (0.035)**
	Muslim	-	-0.341 (0.090)***	0.201 (0.217)	-0.009 (0.030)
	Other religion	-	-0.321 (0.088)***	0.458 (0.132)***	-0.055 (0.037)
	Marital status: ref. married				
	Separated	-	-0.317 (0.188)**	0.251 (0.119)*	-0.241 (0.052)***
	Divorced	-	-0.151 (0.032)***	0.209 (0.048)***	-0.134 (0.015)***
	Widowed	-	-0.054 (0.031)	-0.053 (0.057)	-0.187 (0.018)***
	Never married	-	-0.035 (0.027)	-0.043 (0.041)	-0.149 (0.013)***
	Employment status: ref. employed				
	Self-employed	-	0.015 (0.043)	-0.122 (0.040)**	0.064 (0.012)***
	Other	-	-0.055 (0.086)	-0.237 (0.079)**	0.054 (0.027)*
	Attend religious services	-	0.025 (0.010)*	0.001 (0.014)	0.004 (0.005)
	Level of religiosity	-	0.036 (0.005)***	-0.013 (0.013)	0.012 (0.003)***
	Size of town	-	-0.002 (0.013)	0.306 (0.034)***	-0.015 (0.006)*
	Take part in social activities	-	0.169 (0.012)***	0.142 (0.022)	0.125 (0.005)***
	Victim of burglary/assault	-	0.197 (0.027)***	-0.282 (0.040)***	0.054 (0.012)***
	Ethnic minority	-	0.295 (0.044)***	-0.056 (0.196)	0.059 (0.021)**
	Citizen of country	-	0.050 (0.065)	0.098 (0.113)	0.017 (0.019)
	Conflict in household	-	0.084 (0.014)***	-0.083 (0.016)***	0.056 (0.004)***
	Financial difficulties	-	0.057 (0.012)***	-0.046 (0.014)**	0.027 (0.006)***
	Intergroup contact	-	0.024 (0.006)***	-	0.011 (0.003)***
	Generalized trust	-	-	-	0.077 (0.005)***
Between level coefficients (short-term analysis model)	Herfindahl (W6)	0.428 (0.243)	-0.344 (0.737)	2.300 (0.917)*	-0.311 (0.150)*
	Herfindahl (W7-W6)	2.034 (2.100)	-6.428 (1.749)***	7.595 (4.769)	1.253 (0.658)
	GDP (W6)	-	0.021 (0.003)***	0.021 (0.004)***	0.005 (0.001)***
	GDP (W7-W6)	-	0.072 (0.042)	0.008 (0.053)	0.034 (0.011)**
	Social inequality (W6)	-	-0.883 (2.086)	-2.261 (3.669)	0.878 (0.732)
	Social inequality (W7-W6)	-	-4.564 (2.175)*	-0.086 (3.001)	0.892 (0.773)
	Government Stability (W6)	-	-0.045 (0.105)	-0.416 (0.156)**	0.025 (0.035)
	Government Stability (W7-W6)	-	-0.181 (0.104)	-0.041 (0.128)	-0.006 (0.022)
	Internal Conflict (W6)		0.096 (0.070)	-0.008 (0.140)	-0.020 (0.031)
	Internal Conflict (W7-W6)		0.068 (0.225)	-0.140 (0.323)	0.141 (0.055)*
	Contact (W7)		0.024 (0.006)***	-	0.011 (0.003)***
	Trust (W7)		-	-	0.077 (0.005)***

	Variables		Trust	Intergroup contact	Quality of life
Between level coefficients (long-term analysis model)	Herfindahl (W1)	0.382 (0.225)	0.979 (0.453)*	2.730 (0.474)***	-0.197 (0.145)
	Herfindahl (W7-W1)	2.159 (0.541)**	-1.626 (0.664)*	3.984 (0.710)***	0.536 (0.279)
	GDP (W1)	-	0.031 (0.010)**	0.016 (0.009)	0.004 (0.003)
	GDP (W7-W1)	-	0.021 (0.009)*	0.019 (0.004)***	0.003 (0.003)
	Social inequality (W1)	-	-0.145 (1.740)	-4.463 (0.983)***	0.783 (0.383)*
	Social inequality (W7-W1)	-	4.084 (2.921)	4.396 (1.950)*	-0.022 (0.669)
	Government Stability (W1)	-	-0.255 (0.119)*	0.154 (0.129)	-0.028 (0.038)
	Government Stability (W7-W1)	-	-0.177 (0.114)	0.121 (0.069)	-0.021 (0.045)
	Internal Conflict (W1)		0.005 (0.090)	-0.061 (0.062)	0.002 (0.018)
	Internal Conflict (W7-W1)		-0.052 (0.124)	-0.551 (0.102)***	0.084 (0.027)**
	Contact (W7)		0.024 (0.006)***	-	0.011 (0.003)***
	Trust (W7)			-	0.077 (0.005)***
Unexplained variance					
Short-term		0.067 (0.016)	0.083 (0.019)	0.202 (0.043)	0.007 (0.002)
Long-term		0.052 (0.013)	0.085 (0.028)	0.059 (0.021)	0.008 (0.002)
Fit indicators					
Short-term	Loglikelihood	9.6011		3.6216	
	Akaike inform. criterion (AIC)	92 195		327 032	
	Bayesian inform. criterion (BIC)	92 238		328 052	
Long-term	Loglikelihood	9.5267		3.5937	
	Akaike inform. criterion (AIC)	92 189		327 009	
	Bayesian inform. criterion (BIC)	92 232		328 029	
Sample size (Countries; respondents)		21; 40,183		21; 33,719	

Note. The upper panel shows the coefficients from the individual-level data that is based on the ESS wave 7 and thus the same for both short- and long-term models. The lower panels indicate the results of the short-term and long-term models. * $P < 0.050$; ** $P < 0.010$; *** $P < 0.001$

Table S9. Full hypothesized model testing the effects of religious diversity on quality of life with alternative diversity indices.

		Quality of life					
	Variables	**WVS**		**ESS**		**LB**	
Between level coefficients	Shannon index (average)	0.019 (0.044)	-	-0.070 (0.063)	-	-0.158 (0.290)	-
	Shannon index (change)	-0.168 (0.086)†	-	-0.503 (0.166)**	-	-0.776 (0.314)*	-
	Evenness index (average)	-	-0.219 (0.208)	-	-0.098 (0.353)	-	-5.270 (3.557)
	Evenness index (change)	-	0.117 (0.240)	-	-0.394 (0.293)	-	-0.335 (1.109)
	Wave	0.036 (0.013)**	0.028 (0.014)*	0.033 (0.015)*	0.025 (0.015)	0.010 (0.021)	0.009 (0.021)
	GDP (average)	0.854 (0.221)***	0.833 (0.232)***	0.527 (0.193)**	0.556 (0.193)**	0.004 (0.025)	0.004 (0.022)
	GDP (change)	0.136 (0.205)	0.095 (0.199)	-0.271 (0.170)	-0.168 (0.171)	0.002 (0.018)	-0.029 (0.025)
	GINI (average)	0.023 (0.019)	0.030 (0.020)	-0.001 (0.005)	-0.004 (0.004)	-0.025 (0.019)	-0.021 (0.020)
	GINI (change)	0.010 (0.006)	0.011 (0.006)†	-0.007 (0.005)	-0.004 (0.005)	-0.085 (0.035)*	-0.089 (0.039)*
	Government Stability (average)	-0.039 (0.027)	-0.040 (0.026)	0.001 (0.031)	-0.002 (0.032)	0.088 (0.135)	0.104 (0.118)
	Government Stability (change)	0.005 (0.007)	0.003 (0.008)	-0.008 (0.014)	0.005 (0.015)	0.029 (0.027)	0.038 (0.024)
	Internal Conflict (average)	-0.007 (0.022)	0.001 (0.023)	-0.013 (0.019)	-0.027 (0.014)†	0.001 (0.069)	0.020 (0.067)
	Internal Conflict (change)	0.016 (0.011)	0.014 (0.012)	0.046 (0.032)	0.044 (0.031)	-0.033 (0.072)	-0.036 (0.068)
Unexplained variance		0.020 (0.006)	0.020 (0.006)	0.009 (0.003)	0.010 (0.004)	0.060 (0.012)	0.058 (0.010)
Fit indicators	Loglikelihood	9.3418	9.3328	11.2737	11.2445	3.2155	3.2233
	Akaike inform. criterion (AIC)	1 497 311	1 497 314	1 246 939	1 246 947	139 254	139 252
	Bayesian inf. criterion (BIC)	1 498 240	1 498 243	1 247 865	1 247 873	139 537	139 535
Sample size	Countries; country-waves; Respondents	68; 145; 179, 306	68; 145; 179, 306	27; 70; 126, 634	27; 70; 126, 634	18; 71; 51, 401	18; 71; 51, 401

Note. Within-level coefficients are omitted from this table as they were the same as in our main analysis (Tables S4, S5, and S6).
† P < 0.060; * P < 0.050; ** P < 0.010; *** P < 0.001.

Table S10. Full hypothesized model examining effects of religious diversity on quality of life controlling for proportion of individuals with no religion across the three surveys.

		WVS	**ESS**	**LB**
	Variables			
Between level coefficients	Herfindahl (average)	-0.014 (0.082)	-0.144 (0.137)	0.459 (0.546)
	Herfindahl (change)	-0.432 (0.192)*	-1.000 (0.392)*	-1.547 (0.645)*
	Wave	0.026 (0.014)	0.029 (0.014)*	0.009 (0.020)
	GDP (average)	0.894 (0.227)***	0.538 (0.199)**	0.017 (0.027)
	GDP (change)	0.206 (0.226)	-0.286 (0.170)	0.011 (0.018)
	GINI (average)	0.025 (0.019)	-0.001 (0.005)	-0.032 (0.019)
	GINI (change)	0.011 (0.007)	-0.005 (0.005)	-0.090 (0.034)**
	Government Stability (average)	-0.045 (0.028)	0.003 (0.031)	0.065 (0.133)
	Government Stability (change)	0.001 (0.007)	-0.003 (0.011)	0.017 (0.025)
	Internal Conflict (average)	-0.010 (0.022)	-0.009 (0.020)	-0.040 (0.065)
	Internal Conflict (change)	0.015 (0.011)	0.035 (0.032)	-0.041 (0.068)
	Proportion of "no-religion"	0.165 (0.116)	0.140 (0.172)	-30.768 (16.123)
Unexplained variance		0.019 (0.007)	0.008 (0.003)	0.058 (0.010)
Fit indicators	Loglikelihood	9.5129	12.9371	3.3823
	Akaike information criterion (AIC)	1 377 931	1 353 466	124 172
	Bayesian inform. criterion (BIC)	1 378 740	1 354 255	123 915
Sample size	Countries; country-waves;	68; 142;	27; 70;	18; 71;
	Respondents	160, 645	126, 634	51, 401

Note. Within-level coefficients are omitted from this table as they were the same as in our main analysis (Tables S4, S5, and S6). * $P < 0.050$; ** $P < 0.010$; *** $P < 0.001$.

Table S11. Full hypothesized model examining effects of religious diversity on quality of life controlling for additional relevant contextual variables.

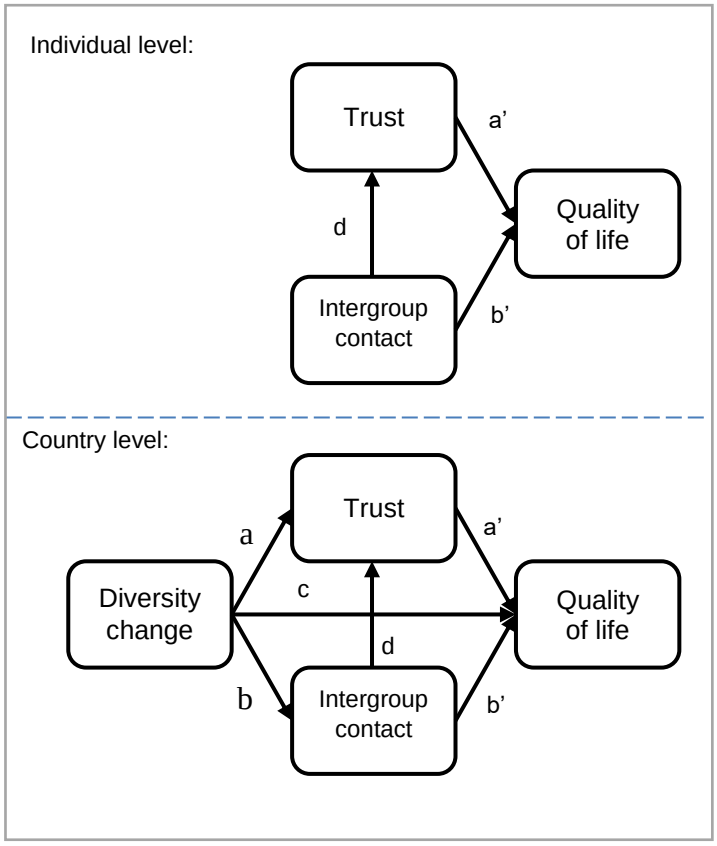
		WVS	ESS	LB
	Variables			
Between level coefficients	Herfindahl (average)	0.010 (0.080)	-0.054 (0.080)	0.185 (0.062)**
	Herfindahl (change)	-0.292 (0.130)*	-0.507 (0.248)*	-0.064 (0.029)*
	Wave	-0.011 (0.018)	0.028 (0.011)*	-0.070 (0.074)
	GDP (average)	0.218 (0.186)	-0.026 (0.113)	0.071 (0.038)
	GDP (change)	0.121 (0.181)	-0.329 (0.147)*	0.021 (0.018)
	GINI (average)	0.030 (0.017)	-0.003 (0.005)	-0.015 (0.033)
	GINI (change)	0.001 (0.006)	0.001 (0.005)	0.016 (0.053)
	Government Stability (average)	-0.049 (0.025)	0.048 (0.022)*	0.033 (0.082)
	Government Stability (change)	0.002 (0.008)	-0.020 (0.011)	-0.012 (0.030)
	Internal Conflict (average)	-0.027 (0.021)	-0.048 (0.018)**	-0.120 (0.064)
	Internal Conflict (change)	0.009 (0.012)	0.031 (0.022)	-0.008 (0.029)
	Life expectancy (average)	0.003 (0.005)	0.008 (0.007)	0.100 (0.061)
	Life expectancy (change)	0.030 (0.011)**	0.012 (0.013)	0.085 (0.077)
	Inflation (average)	0.001 (0.001)	-0.023 (0.012)	0.062 (0.047)
	Inflation (change)	0.001 (0.001)	-0.007 (0.005)	0.030 (0.022)
	Corruption (average)	-0.068 (0.025)**	-0.038 (0.020)	0.181 (0.034)***
	Corruption (change)	-0.005 (0.018)	0.046 (0.033)	0.019 (0.020)
	Unemployment (average)	-0.008 (0.004)	-0.008 (0.006)	0.029 (0.040)
	Unemployment (change)	-0.001 (0.004)	-0.013 (0.004)**	-0.110 (0.056)*
	Population size (average)	0.001 (0.001)	-0.001 (0.001)	-0.089 (0.043)*
	Population size (change)	0.001 (0.001)	-0.015 (0.020)	-0.004 (0.035)
Unexplained variance		0.010 (0.005)	0.003 (0.001)	0.025 (0.006)
Fit indicators	Loglikelihood	7.9018	10.3056	2.6357
	Akaike information criterion (AIC)	1 318 960	1 246 890	135 603
	Bayesian inform. criterion (BIC)	1 320 007	1 247 913	135 975
Sample size	Countries; country-waves; respondents	68; 141; 158, 674	27; 70; 126, 634	18; 71 51, 401

Note. Within-level coefficients are omitted from this table as they were the same as in our main analysis (Tables S4, S5, and S6). * $P < 0.050$; ** $P < 0.010$; *** $P < 0.001$.

Table S12. Full hypothesized model testing effects of religious diversity on quality of life with the WVS, ESS, and LB for Catholics and the other religious groups.

		WVS		ESS		LB	
	Variables	Catholics	Other	Catholics	Other	Catholics	Other
Between level coefficients	Herfindahl (average)	0.068 (0.102)	0.004 (0.077)	-0.056 (0.109)	-0.096 (0.117)	0.293 (0.501)	0.245 (0.578)
	Herfindahl (change)	-0.492 (0.222)*	-0.392 (0.184)*	-0.484 (0.552)	-0.893 (0.400)*	-1.445 (0.600)*	-1.706 (0.854)*
	Wave	0.057 (0.018)**	0.023 (0.014)	0.025 (0.018)	0.033 (0.012)**	0.007 (0.019)	0.003 (0.023)
	GDP (average)	1.041 (0.270)***	0.844 (0.231)***	0.483 (0.199)*	0.495 (0.196)*	0.018 (0.026)	0.020 (0.030)
	GDP (change)	-0.043 (0.287)	0.200 (0.214)	-0.260 (0.208)	-0.350 (0.163)*	0.004 (0.019)	0.051 (0.018)**
	GINI (average)	0.017 (0.020)	0.028 (0.019)	0.002 (0.006)	-0.004 (0.005)	-0.030 (0.019)	-0.025 (0.020)
	GINI (change)	0.013 (0.006)*	0.013 (0.006)*	-0.001 (0.006)	-0.008 (0.004)*	-0.089 (0.034)**	-0.084 (0.036)*
	Government Stability (average)	-0.060 (0.030)*	-0.045 (0.028)	-0.006 (0.034)	0.008 (0.030)	0.063 (0.024)	0.038 (0.140)
	Government Stability (change)	0.001 (0.010)	0.001 (0.007)	-0.006 (0.020)	0.004 (0.012)	0.022 (0.024)	0.029 (0.033)
	Internal Conflict (average)	-0.034 (0.021)	-0.005 (0.023)	-0.018 (0.028)	-0.007 (0.020)	-0.036 (0.064)	-0.010 (0.073)
	Internal Conflict (change)	0.005 (0.013)	0.016 (0.011)	0.047 (0.053)	0.031 (0.030)	-0.040 (0.066)	-0.063 (0.077)
Unexplained variance		0.024 (0.008)	0.019 (0.007)	0.005 (0.003)	0.008 (0.004)	0.057 (0.011)	0.064 (0.012)
Fit indicators	Loglikelihood	5.7329	8.7250	5.7700	13.5993	2.9675	2.1135
	Akaike inform. criterion (AIC)	379 341	957 529	407 344	839 594	111 687	27 691
	Bayesian infor. criterion (BIC)	380 014	958 272	408 008	840 314	111 928	27 893
Sample size	Countries; country-waves;	62; 127;	68; 142;	26; 67;	27; 70;	18; 71;	18; 71;
	Respondents	46, 010	114, 635	41, 319	85, 315	41, 359	10, 042

Note. Within-level coefficients are omitted from this table as they were the same as in our main analysis (Tables S4, S5, and S6).
* P < 0.050; ** P < 0.010; *** P < 0.001.



Indirect effects	Short-term changes	Long-term changes
Via trust (a*a')	-0.496*** (0.129)	-0.126* (0.050)
Via contact (b*b')	0.086 (0.058)	0.045** (0.013)
Via contact and trust (b*d*a')	0.014 (0.009)	0.007** (0.002)
Total indirect (a*a' + b*b' + b*d*a')	-0.395* (0.165)	-0.073 (0.055)
Total effect (a*a' + b*b' + a*d*b' + c)	0.858 (0.652)	0.464 (0.314)

Fig. S1. Left panel: Paths of the predicted mediation model. Right panel: Unstandardized regression coefficients (standard errors in parentheses) for the indirect effects, total indirect effect, and total effect. * P < 0.050; ** P < 0.010.

Gap between waves (in years)	Unstandardized regression coefficients
6y (2008-14)	**-0.493 (0.248)***
10y (2004-14)	-0.066 (0.207)
16y (1998-14)	0.018 (0.275)
20y (1994-14)	-0.341 (0.188)
30y (1984-14)	-0.347 (0.250)

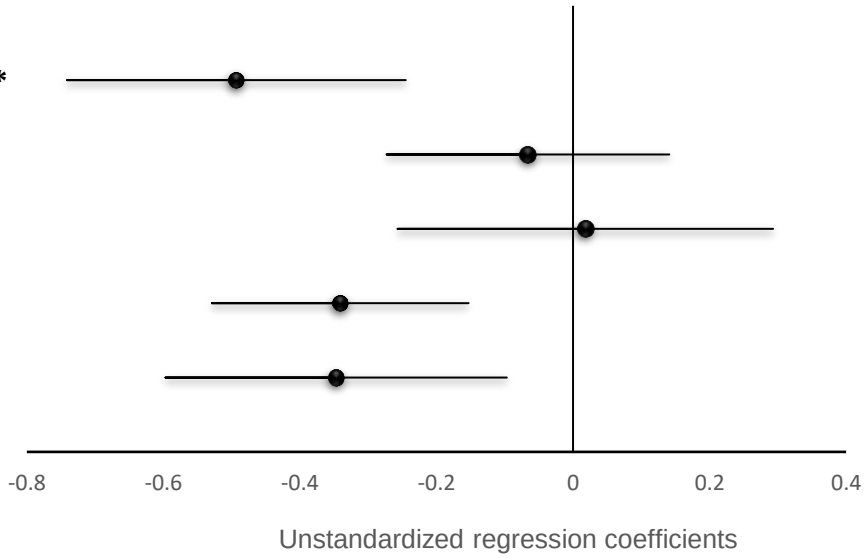


Fig. S2. World Values Survey: Unstandardized regression coefficients of changes in religious diversity with standard errors in parentheses. * P < 0.050.

Gap between waves (in years)	Unstandardized regression coefficients
2y (2013-15)	**-1.688 (0.666)***
4y (2011-15)	**-2.476 (0.982)***
5y (2010-15)	1.889 (1.090)
6y (2009-15)	0.502 (0.843)
7y (2008-15)	1.195 (0.712)
8y (2007-15)	2.094 (1.068)
9y (2006-15)	1.845 (0.939)*
10y (2005-15)	1.313 (0.590)*
11y (2004-15)	-0.371 (0.857)
12y (2003-15)	-0.038 (0.393)
13y (2002-15)	0.357 (0.361)
14y (2001-15)	0.771 (0.687)

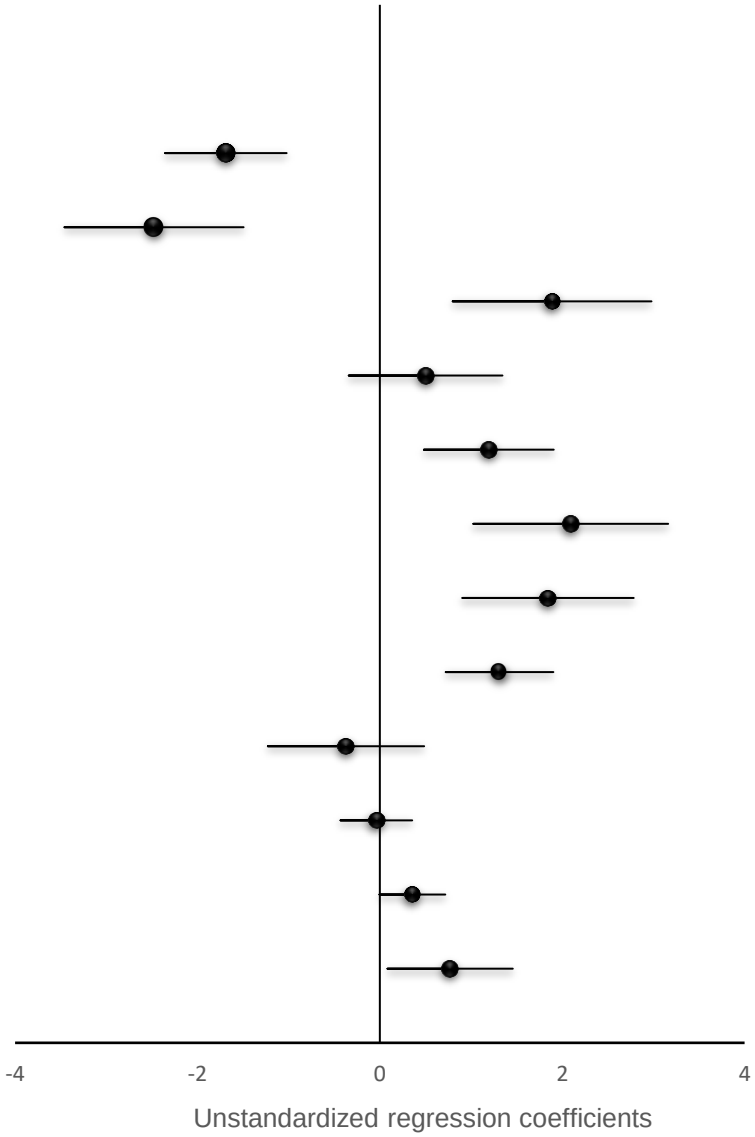


Fig. S3. Latino Barometro: Unstandardized regression coefficients of changes in religious diversity with standard errors in parentheses. * P < 0.050

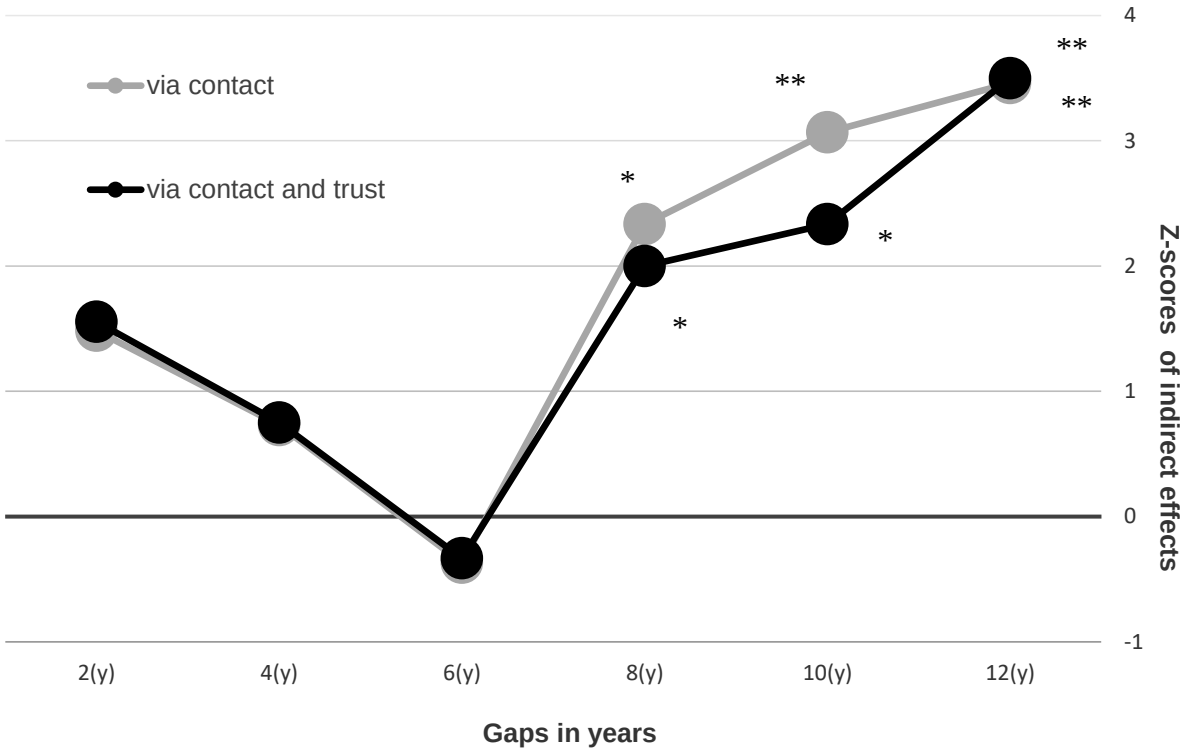
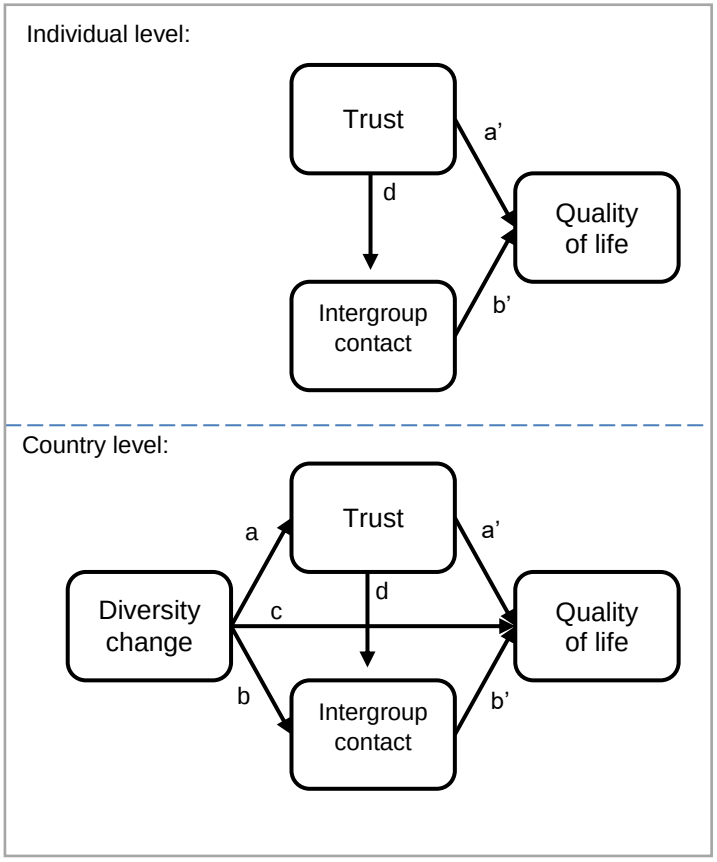


Fig. S4. An analysis of specified indirect effects via intergroup contact only and via intergroup contact and trust for all possible gaps. For a direct comparison of the different indirect effects, we depicted the z-scores (estimate/standard error) of each effect. * $P < 0.050$; ** $P < 0.010$.



Indirect effects	Short-term changes	Long-term changes
Via trust (a*a')	-0.481*** (0.133)	-0.118* (0.050)
Via contact (b*b')	0.088 (0.058)	0.046** (0.013)
Via trust and contact (a*d*b')	-0.002* (0.001)	-0.001 (0.001)
Total indirect (a*a' + b*b' + a*d*b')	-0.395* (0.165)	-0.073 (0.055)
Total effect (a*a' + b*b' + a*d*b' + c)	0.858 (0.652)	0.464 (0.314)

Fig. S5. Left panel: Paths of the reverse causal relationship between trust and intergroup contact. Right panel: Unstandardized regression coefficients (standard errors in parentheses) for the indirect effects, total indirect effect, and total effect. * P < 0.050; ** P < 0.010; *** P < 0.001.

References

1. Kahneman D, Krueger AB (2006) Developments in the measurement of subjective well-being. *J Econ Perspect* 20(1):3-24.
2. Easterlin RA, McVey LA, Switek M, Sawangfa O, Zweig JS (2010) The happiness–income paradox revisited. *Proc Natl Acad Sci USA* 107:22463-22468.
3. Blanchflower D, Oswald A (2008) Is well-being U-shaped over the life cycle? *Soc Sci Med* 66(8):1733-1749.
4. Diener E, Suh EM, Lucas RE, Smith HL (1999) Subjective well-being: Three decades of progress. *Psychol Bull* 125(2):276–302.
5. Ellison CG (1991) Religious involvement and subjective well-being. *J Health Soc Behav* 32(1):80-99.
6. Lillie-Blanton M, Laveist T (1996) Race/ethnicity, the social environment, and health. *Soc Sci Med* 43(1):83-91.
7. Helliwell JF (2003) How's life? Combining individual and national variables to explain subjective well-being. *Econ Model* 20(2):331–360.
8. Helliwell JF, Barrington-Leigh CP, Harris A, Huang H (2009) "International evidence on the social context of well-being" in *International Differences in Well-Being* (Oxford University Press, Oxford), pp. 291–327.
9. Jonsson KR, Demireva N (2018) Does the ethno-religious diversity of a neighbourhood affect the perceived health of its residents? *Soc Sci Med* 204:108-116.
10. Akdede SH (2010) Do more ethnically and religiously diverse countries have lower democratization? *Econ Lett* 106(2):101-104.
11. Barro RJ (1999) Determinants of Democracy, *J Polit Econ* 107(S6):158–183.
12. Diener E, Seligman ME (2004) Beyond money: Toward an economy of well-being. *Psychol Sci Public Interest* 5(1):1-31.
13. La Porta R, Lopez-de-Silanes F, Shleifer A, Vishny R (1999) The quality of government. *J Law Econ Organ* 15(1):222-279.
14. Reilly B (2001) *Democracy in Divided Societies: Electoral Engineering for Conflict Management* (Cambridge University Press, Cambridge, UK).
15. Solt F (2009) Standardizing the World Income Inequality Database. *Soc Sci Q* 90(2):231-242.
16. Massey DS, Denton NA (1988) The dimensions of residential segregation. *Soc Forces*, 67(2):281-315.
17. Snijders TB, Bosker RJ (1999) *Multilevel Analysis: An Introduction to Basic and Advanced Multilevel Modeling* (Sage, Thousand Oaks, CA).
18. Bentler PM, Chou CP (1987) Practical issues in structural modeling. *Sociol Methods Res* 16(1):78-117.
19. Muthén B, Muthén L (2017) *Mplus 8.0.* (Muthén & Muthén, Los Angeles, CA).
20. Little RA, Rubin DB (2000) "Bayes and multiple imputation" In *Statistical Analysis with Missing Data* (John Wiley & Sons, New Jersey), pp. 200–222.
21. Alesina A, Devleeschauwer A, Easterly W, Kurlat S, Wacziarg R (2003) Fractionalization. *J Econ Growth* 8(2):155-194.
22. Pew Research Center, Religious Diversity Index (2014); http://assets.pewresearch.org/wp-content/uploads/sites/11/2014/04/Religious-Diversity-appendix-1.pdfCampbell A (1981) *The Sense of Well-being in America* (McGraw-Hill, New York).

23. Campbell A (1981) *The Sense of Well-being in America* (McGraw-Hill, New York).
24. Naughton MJ, Wiklund I (1993) A critical review of dimension-specific measures of health-related quality of life in cross-cultural research. *Qual Life Res* 2(6), 397-432.
25. Palys TS, Little BR (1983) Perceived life satisfaction and organization of personal projects systems. *J Pers Soc Psychol* 44(6):1221–1230.
26. World Health Organization, Measuring Quality of Life (1997); http://www.who.int/mental_health/media/en/68.pdf
27. Shelton JN, Richeson JA, Vorauer JD (2006) Threatened identities and interethnic interactions. *Eur Rev Soc Psychol* 17(1):321-358.
28. Stephan WG, Stephan CW (1989) Antecedents of intergroup anxiety in Asian-Americans and Hispanic-Americans. *Int J Intercult Relat* 13(2):203-219.
29. Vorauer JD, Hunter AJ, Main KJ, Roy SA (2000) Meta-stereotype activation: evidence from indirect measures for specific evaluative concerns experienced by members of dominant groups in intergroup interaction. *J Pers Soc Psychol* 78(4):690-707.
30. Toosi NR, Babbitt LG, Ambady N, Sommers S-R (2012) Dyadic interracial interactions: A meta-analysis. *Psychol Bull* 138(1):1–27.
31. Blascovich J, Mendes WB, Hunter SB, Lickel B, Kowai-Bell N (2001) Perceiver threat in social interactions with stigmatized others. *J Pers Soc Psychol* 80(2):253-267.
32. Richeson JA, Shelton JN (2003) When prejudice does not pay: Effects of interracial contact on executive function. *Psychol Sci* 14(3):287-290.
33. McEwen BS (2012) Brain on stress: How the social environment gets under the skin. *Proc Natl Acad Sci USA* 109(2):17180-17185.
34. Cassel J (1976) The contribution of the social environment to host resistance. *Am J Epidemiol* 104(2):107-123.
35. Idler EL, Benyamini Y (1997) Self-rated health and mortality: a review of twenty-seven community studies. *J Health Soc Behav* 38(1):21-37.
36. Clark AE, Oswald AJ (1994) Unhappiness and unemployment. *Econ J* 104(424):648-659.
37. Kahneman D, Sugden E (2005) Experienced utility as a standard of policy evaluation. *Environ Resour Econ* 32(1):161-181.
38. Shannon CE (1948) A mathematical theory of communication, *Bell Syst Tech J* 27(3):379–423.
39. Alba R, Rumbaut RG, Marotz K (2005) A distorted nation: Perceptions of racial/ethnic group sizes and attitudes toward immigrants and other minorities. *Soc Forces* 84(2):901-919.
40. Mulder C, Bazeley-White E, Dimitrakopoulos P, Hector A, Scherer-Lorenzen M, Schmid B (2004) Species evenness and productivity in experimental plant communities. *Oikos* 107(1):50–63.
41. Esteban J, Mayoral L, Ray D (2012) Ethnicity and conflict: Theory and facts. *Science* 336(6083):858-865.
42. Fairbrother M (2014) Two multilevel modeling techniques for analyzing comparative longitudinal survey datasets. *Polit Sci Res Methods* 2(1):119-140.
43. Stevenson B, Wolfers J (2008) Economic Growth and Subjective Well-Being: Reassessing the Easterlin Paradox'. *Brookings Pap Econ Act* 1-87.

44. Laurence J, Bentley L (2015) Does ethnic diversity have a negative effect on attitudes towards the community? A longitudinal analysis of the causal claims within the ethnic diversity and social cohesion debate. *Eur Sociol Rev* 32(1):54-67.
45. Schaeffer M, Lancee B (2014) "Moving to diversity: residential mobility, changes in ethnic diversity, and concerns about immigration" In *Social Cohesion and Immigration in Europe and North America* (Routledge, London), pp. 58-75.
46. Allport GW (1954) *The Nature of Prejudice* (Addison-Wesley, Cambridge, MA).
47. MacInnis CC, Page-Gould E (2015) How can intergroup interaction be bad if intergroup contact is good? Exploring and reconciling an apparent paradox in the science of intergroup relations. *Perspect Psychol Sci* 10(3):307–327.